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Terms	Documents
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Terms	Documents
l3 and ((serial adj1 bus) same (module or device) same node)	14

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L3 (serial adj1 bus) same (module or device) same (configur\$5 near5 ROM) 17 L3
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L2 L1 0 L2
DB=USPT; PLUR=YES; OP=OR
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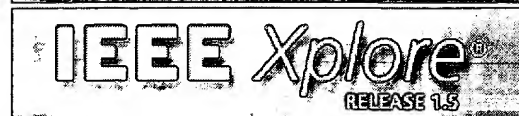
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1	<input type="checkbox"/>	<input type="checkbox"/>	US 6643714 B1	20031104	15	Modification and use of configuration memory used	710/8	370/202; 709/227;
2	<input type="checkbox"/>	<input type="checkbox"/>	US 6639914 B1	20031028	6	Analog translator for IEEE 1394 and translating method	370/389	370/463; 370/465;
3	<input type="checkbox"/>	<input type="checkbox"/>	US 6603737 B1	20030805	78	Data transmission apparatus, system and method, and image	370/229	370/252
4	<input type="checkbox"/>	<input type="checkbox"/>	US 6526516 B1	20030225	53	Power control system and method for distribution of	713/340	713/330
5	<input type="checkbox"/>	<input type="checkbox"/>	US 6498598 B2	20021224	45	Imaging device system, control method for the	345/156	345/716
6	<input type="checkbox"/>	<input type="checkbox"/>	US 6477589 B1	20021105	80	Information processing apparatus and method	710/18	710/10; 710/19;
7	<input type="checkbox"/>	<input type="checkbox"/>	US 6367026 B1	20020402	10	Unbalanced clock tree for a digital interface between an	713/401	713/503
8	<input type="checkbox"/>	<input type="checkbox"/>	US 6334161 B1	20011225	85	System for reverse data transmission flow control	710/29	709/212; 709/213;
9	<input type="checkbox"/>	<input type="checkbox"/>	US 6237049 B1	20010522	30	Method and system for defining and discovering	710/8	725/118; 725/120;
10	<input type="checkbox"/>	<input type="checkbox"/>	US 6141767 A	20001031	20	Method of and apparatus for verifying reliability of	714/1	365/201
11	<input type="checkbox"/>	<input type="checkbox"/>	US 6018816 A	20000125	71	Information processing system and method, image	714/746	358/462; 358/502;

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((serial bus)) and ROM

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WESCON/97. Conference Proceedings , 4-6 Nov. 1997

Page(s): 442 -475

[\[Abstract\]](#) [\[PDF Full-Text \(1588 KB\)\]](#) **IEEE CNF****2 Meeting IEEE1394 (Firewire™) overcurrent protection requirements***Wiener, P.;*

Northcon/98 Conference Proceedings , 21-23 Oct. 1998

Page(s): 138 -148

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Meeting USB and IEEE1394 overcurrent protection requirements using PolySwitch devices

Wiener, P. Witham, J.

Electron. Div., Raychem Corp., Menlo Park, CA;

This paper appears in: WESCON/97. Conference Proceedings

Meeting Date: 11/04/1997 -11/06/1997

Publication Date: 4-6 Nov 1997

Location: Santa Clara, CA, USA

On page(s): 442-475

References Cited: 0

Number of Pages: vi+588

INSPEC Accession Number: 5816178

Abstract:

Universal Serial Bus (USB) and the high performance serial bus IEEE1394, also known as Firewire (trademark), will allow PCs to be built in a more modular fashion and sold like home entertainment systems where people buy the specific components they want rather than a preconfigured system. The USB technology allows peripherals from printers to joysticks to seamlessly plug into a PC and prompts the computer to reconfigure itself to accept the new device. IEEE1394 brings the computer environment and the consumer electronics market together. It will become possible for consumers to take their computers and then integrate audio/visual components such as televisions, stereos, or DVD-ROM drives simply by using the IEEE1394 connections. Both buses use powered port architecture. In the Plug-and-Play and Hot-plug environment, reliable and resettable overcurrent protection is a must.

Index Terms:

[computer power supplies](#) [overcurrent protection](#) [peripheral interfaces](#) [system buses](#) [Firewire](#) [Hot-plug](#) [IEEE1394](#) [Plug-and-Play](#) [PolySwitch](#) [USB](#) [high performance serial bus](#) [overcurrent protection](#) [powered port architectures](#)

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L1: Entry 8 of 13

File: USPT

May 22, 2001

DOCUMENT-IDENTIFIER: US 6237049 B1

TITLE: Method and system for defining and discovering proxy functionality on a distributed audio video network

Detailed Description Text (18):

FIG. 3A is a block diagram of memory space referred to as a configuration ROM 302, which is located within each node (e.g., TV 11, VCR 12, set-top-box 13, etc.) of network 5 of FIG. 1. It should be appreciated that configuration ROM 302 of the present invention is defined by the IEEE 1212 specification, which is well known by those of ordinary skill in the art and is the foundation technology of the IEEE 1394 serial bus specification. One embodiment of configuration ROM 302 is a 64 bit memory space that is divided into two different subsections. One subsection contains the upper 16 bits of address space that are used for storing the identification (ID) of a node, which includes its physical identification (phyID) 304. The other subsection within configuration ROM 302 contains the remaining 48 bits of address space that are used for storing other configuration ROM data structures 306 pertaining to the specific node, e.g., its Global Unique Identification (GUID) value. In this manner, an IEEE 1394 serial bus network of the present invention is a memory mapped bus network. It should be appreciated that a proxy data structure 330 is typically stored within the 48 bits of address space along with the other data structures 306 of configuration ROM 302, in accordance with the present invention. The proxy data structure 330 is described in more detail below with reference to FIGS. 3C and 3D. It should be further appreciated that there are many other embodiments of the configuration ROM 302 in accordance with the present invention. For example, the configuration ROM 302 can be implemented using RAM, static RAM, dynamic RAM, programmable ROM, flash memory, EPROM, EEPROM, or any other memory device.

Detailed Description Text (21):

The proxy tag 332 of FIG. 3C, in accordance with the present invention, is a recognizable tag to other nodes of network 5 indicating that proxy device 13 is a proxy for a particular node (e.g., VCR 12). It should be appreciated that proxy tag 332 should be defined within the IEEE 1212r specification, in accordance with the present invention. In this manner, all other consumer electronic devices that are coupled together by an IEEE 1394 serial bus will, by definition, recognize proxy tag 332 when they search the configuration ROM of proxy device 13, regardless of whatever higher level protocols (e.g., AV/C, HAVi, etc.) they support. The length 334 indicates the amount of bytes that correspond to the proxy identifier 336.

Detailed Description Text (31):

FIG. 5 is a flowchart illustrating steps of a process 500 for establishing a proxy consumer electronic media device as a proxy for other consumer electronic media devices in accordance with one embodiment of the present invention. It should be appreciated that process 500 is one embodiment of step 404 of FIGS. 4A and 4B, in accordance with the present invention. Process 500 is realized as program code stored within computer readable memory units of a proxy consumer electronic media device and other consumer electronic media devices of network 5. Process 500 begins at step 502 and at step 504, the proxy device discovers a consumer electronic media device which is coupled to the IEEE 1394 serial bus. This process utilizes well known IEEE 1394 communication protocol mechanisms. At step 506, the proxy device determines the functional capabilities of the located consumer electronic media device. One method in accordance with the present invention for the proxy device to perform step 506 is to read all of the configuration ROM within the located consumer

electronic media device, which is a well known IEEE 1212 communication protocol mechanism.

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File: USPT

May 22, 2001

US-PAT-NO: 6237049

DOCUMENT-IDENTIFIER: US 6237049 B1

TITLE: Method and system for defining and discovering proxy functionality on a distributed audio video network

DATE-ISSUED: May 22, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ludtke; Harold Aaron	San Jose	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Sony Corporation of Japan	Tokyo			JP	03
Sony Electronics, Inc.	Park Ridge	NJ			02

APPL-NO: 09/ 151373 [PALM]

DATE FILED: September 10, 1998

PARENT-CASE:

CROSS REFERENCE TO RELATED APPLICATIONS This is a continuation-in-part of U.S. application Ser. No. 09/003,119, now U.S. Pat. No. 6,032,202 entitled "Home Audio/Video Network with Two Level Device Control" by Rodger J. Lea et al., filed Jan. 6, 1998.

INT-CL: [07] H04 N 7/173

US-CL-ISSUED: 710/8; 725/118; 725/120; 725/131; 725/134

US-CL-CURRENT: 710/8; 725/118; 725/120; 725/131; 725/134

FIELD-OF-SEARCH: 348/8, 348/6, 455/6.2, 455/6.3, 700/8, 700/9, 709/208, 709/217, 709/218, 709/219, 709/213, 709/216, 709/229, 709/249, 340/825.25, 340/825.24, 710/8, 710/101

PRIOR-ART-DISCLOSED:

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<input type="checkbox"/>	<u>5798922</u>	August 1998	Wood et al.	364/400
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<input type="checkbox"/>	<u>6038625</u>	March 2000	Ogino et al.	710/104
<input type="checkbox"/>	<u>6052750</u>	April 2000	Lea	710/72

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
WO97/37202	October 1987	WO	
WO99/35856	July 1999	WO	

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Moses et al., Audio Distribution and Control using the IEEE 1394 Serial Bus--p. 5 of 15, 1998.*
Jason Krause: "What the Hell is . . . Jini", The Industry Standard, Online! retrived on Apr. 23, 1999, the whole document.
Wray S. et al. "Networked Multimedia: The Medusa Environment" IEEE Multimedia, US, IEEE Computer Society, vol. 1, No. 4, pp. 54-63.

ART-UNIT: 261

PRIMARY-EXAMINER: Faile; Andrew

ASSISTANT-EXAMINER: Bui; Kieu-Oanh

ATTY-AGENT-FIRM: Wagner, Murabito & Hao LLP

ABSTRACT:

A method and system for defining and discovering proxy functionality on a distributed audio video network. The present invention operates within a network of consumer electronic media devices (e.g., television, set-top-box, video cassette recorder, compact disc device, personal computer system, etc.) that are coupled together using the IEEE 1394 serial communication standard. Specifically, the present invention enables a consumer electronic media device having increased functionality to act as a proxy device for other consumer electronic media devices. As such, the proxy device is able to provide a wide variety of advantageous proxy services for other consumer electronic media devices thereby increasing their original capabilities. For instance, the proxy device can act as a translator between two devices thereby enabling them to communicate. Additionally, the proxy device can enable Home Audio Video Interoperability (HAVi) devices to have greater control over non-HAVi devices. Moreover, the proxy device can extend the existing functionality of devices as well as provide new functionality for them. Furthermore, the proxy device can act as a command arbitrator for particular devices. Also, the proxy device can act as a proxy for all or a portion of the functionality of a device. It is appreciated that these are only examples of the possible advantageous proxy services that the proxy device can provide for other devices in accordance with the present invention.

37 Claims, 18 Drawing figures

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L1: Entry 12 of 13

File: USPT

Mar 16, 1999

DOCUMENT-IDENTIFIER: US 5883621 A

**** See image for Certificate of Correction ****

TITLE: Device control with topology map in a digital network

Detailed Description Text (18):

Returning to FIG. 3, step 408, after the self identification process, a device identification process is performed. During this process 408, DSS IRD 100 sends commands to all the nodes and inquires as to their respective device types. Device type information may be stored in and returned from a configuration ROM associated with each node of the serial bus as is known in the art.

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L1: Entry 12 of 13

File: USPT

Mar 16, 1999

US-PAT-NO: 5883621

DOCUMENT-IDENTIFIER: US 5883621 A

**** See image for Certificate of Correction ****

TITLE: Device control with topology map in a digital network

DATE-ISSUED: March 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Iwamura, Ryuichi	San diego	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Sony Corporation	Tokyo			JP	03
Sony Electronics, Inc.	Park Ridge	NJ			02

APPL-NO: 08/ 664445 [PALM]

DATE FILED: June 21, 1996

INT-CL: [06] G06 F 15/00

US-CL-ISSUED: 345/327; 345/339, 345/348, 345/969

US-CL-CURRENT: 725/37; 345/719, 345/735, 345/969, 725/131

FIELD-OF-SEARCH: 395/329, 395/339, 395/340, 395/342, 395/348, 395/349, 395/352, 395/356, 395/357, 395/970, 395/969, 345/329, 345/969, 345/970, 345/327, 345/339, 345/348, 345/356

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<input type="checkbox"/>	<u>5261044</u>	November 1993	Dev et al.	345/348
<input type="checkbox"/>	<u>5353399</u>	October 1994	Kuwamoto et al.	345/349
<input type="checkbox"/>	<u>5504863</u>	April 1996	Yoshida	395/184.01
<input type="checkbox"/>	<u>5548722</u>	August 1996	Jalalian et al.	395/200.5

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Response to EIA R4.1 Committee Request for Proposals for Baseband Digital Interface, Sony Corporation, Texas Instruments, Inc., Thursday, Aug. 31, 1995.
P1394 Standard for a High Performance Serial Bus, Copyright.sup..COPYRGT. 1995 by The Institute of Electrical And Electronic Engineers, Inc., P 1394 Draft 8..0v3, Oct. 15, 1995.

ART-UNIT: 273

PRIMARY-EXAMINER: Huynh; BA

ATTY-AGENT-FIRM: Blakely, Sokoloff, Taylor & Zafman LLP

ABSTRACT:

A topology map for a digital system is generated and displayed on a display device to indicate the various components which make up the system. The various components are indicated using icons each of which represent a respective one of the components. A user specifies a source device and a receive device by manipulating the corresponding icons so as to cause a data transfer between the source device and the receive device. The data transfer may include the transfer of video data, audio data, or both. In a preferred embodiment, the digital network corresponds to the IEEE 1394 Serial Bus Standard.

15 Claims, 14 Drawing figures

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L4: Entry 1 of 14

File: USPT

Nov 4, 2003

DOCUMENT-IDENTIFIER: US 6643714 B1

TITLE: Modification and use of configuration memory used during operation of a serial bus

Brief Summary Text (6):

The configuration memory of a given node provides, in part, a description of the functional capabilities of that node. The configuration memory for each node residing on the serial bus is exposed to all other nodes. During a configuration process, other nodes access each node's configuration memory (a process often referred to as "enumerating") in order to determine the proper system configuration. Thus, one function of the configuration memory of a given node is to instruct other nodes as to the given node's functional capabilities, thereby allowing the other nodes to determine which device drivers to load. As known in the art, for a general computer system having a number of devices, each device has an associated driver that, among other functions, configures the device and allows the device to be operable within the overall system. Drivers are typically software instructions that can be loaded into the computer's memory and, when executed, will communicate with the device to properly configure the device for operation. The driver may initialize the device so that the device can function and the driver may also allow the device to communicate within the overall system.

Brief Summary Text (10):

In one embodiment of the present, invention, any PC coupled via an IEEE 1394 standard compliant serial bus to one or more 1394-compliant devices could be used to emulate the functionality of virtually any 1394-compliant device. In turn, this emulation capability allows developers to simulate device/peripheral functionality during development. In another embodiment of the present invention, peripherals coupled to the "emulating" PC but not otherwise available via the serial bus can be exposed to other devices coupled to the PC via the serial bus. For example, a PC having a Digital Video Disc (DVD) drive coupled thereto can emulate to other 1394 nodes that it is a DVD drive, thereby allowing the other 1394 nodes to access the DVD drive functionality.

Drawing Description Text (3):

FIG. 2 is a schematic block diagram of a system of devices and corresponding nodes coupled together via a serial bus;

Detailed Description Text (9):

Procedures of the present invention to be described below can operate within the environment of the computer 100 shown in FIG. 1. Although the present invention is generally applicable to a computer operating in accordance with the IEEE 1394 standard, the present invention is applicable to any computer system that implements the Control and Status Registers (CSR) configuration ROM architecture described in the ISO/IEC 13213 (ANSI/IEEE 1212) CSR Architecture Specification. An exemplary system of devices 200 communicating via a serial bus, to which system the present invention may be beneficially applied, is illustrated in FIG. 2.

Detailed Description Text (10):

The system 200 comprises several devices including a computer 201 (such as the computer 100 of FIG. 1), a printer 202, a digital camera 203, a scanner 204, a digital VCR 205 and a CD-ROM 206. As shown, the devices 201-206 are coupled to each other via multiple interconnections 222-226. Each of the interconnections 222-226 is

preferably constructed in accordance with the IEEE 1394 standard and includes a first differential signal pair for conducting a first signal, a second differential signal pair for conducting a second signal, and a pair of power lines. Although specific devices are shown in FIG. 2, those having ordinary skill in the art will recognize that a wide variety of electrical/electronic devices could be coupled together in this manner using a similarly wide variety of interconnections. Although not shown, the computer 201 may include one or more devices that are normally not functionally available to the other devices 202-206. Collectively, the interconnections 222-226 constitute the cabling of the serial bus and a plurality of nodes 211-216 implement the functionality of the serial bus. Each of the devices of the computer system 200 is coupled to a node of the serial bus. In general, the device to which a node is coupled acts as the "local host" for that node. For example, the computer 201 is the local host for the computer node 211; the printer 202 is the local host for the printer node 212; the digital camera 203 is the local host for the digital camera node 213; the scanner 204 is the local host for the scanner node 214; the digital VCR 205 is the local host for the digital VCR node 215; and the CD-ROM 206 is the local host for the CD-ROM node 216. It is not necessary for every node to have a local host, nor is it necessary that the local host always be powered.

Detailed Description Text (12):

Each of the nodes 211-216 also provides an address space which can be directly mapped to one or more units. A unit is a logical entity (for example, a disk controller) which corresponds to unique input/output (I/O) driver software. A unit may be defined by a unit architecture that defines the format and function of the unit's software visible registers. Within a unit there may be multiple subunits, which can be accessed through independent control registers or uniquely addressed DMA-command sequences. The logical organization of nodes and units is further illustrated in FIG. 3, where a module 301 comprising a plurality of nodes 303-305 is shown. A module is a physical device, coupled to a serial bus 312, having one or more nodes. Each of the nodes may comprise one or more units 307-310. The implementation and operation of the nodes is well known in the art.

Detailed Description Text (25):

At step 804, the device driver and a bus driver operate in accordance with the method of FIG. 7 to modify configuration memory to include the new unit directory. Further, at step 805, the device driver and bus driver again cooperate to cause a bus reset, thereby forcing other nodes residing on the serial bus to enumerate the modified configuration memory. Steps 806 and 807 are essentially identical to steps 705 and 706, respectively.

Detailed Description Text (26):

FIG. 9 illustrates a method that may be beneficially applied to a system of devices coupled together via a serial bus. The method of FIG. 8 is preferably implemented, where appropriate, as computer-executable software instructions executed by the appropriate devices within the system. Steps 901 through 903 are essentially equivalent to steps 803 through 805, respectively, and are preferably carried out by a first personal computer or the like coupled to the serial bus. Furthermore, in an embodiment of the present invention, at least one other computer is coupled to the first computer via the serial bus. Referring to the example of FIG. 2, the computer 201, rather than being coupled to the printer 212, could instead be coupled to another computer implementing a 1394-compliant node.

WEST☐

L4: Entry 1 of 14

File: USPT

Nov 4, 2003

US-PAT-NO: 6643714

DOCUMENT-IDENTIFIER: US 6643714 B1

TITLE: Modification and use of configuration memory used during operation of a serial bus

DATE-ISSUED: November 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chrysanthakopoulos; Georgios	Kirkland	WA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Microsoft Corporation	Redmond	WA			02

APPL-NO: 09/ 441264 [PALM]

DATE FILED: November 16, 1999

PARENT-CASE:

This application claims the benefit of Provisional application Ser. No. 60/126,159, filed Mar. 25, 1999.

INT-CL: [07] G06 F 3/00

US-CL-ISSUED: 710/8; 710/1, 710/2, 710/10, 710/38, 710/13, 710/313, 710/305, 370/202, 709/227

US-CL-CURRENT: 710/8; 370/202, 709/227, 710/1, 710/10, 710/13, 710/2, 710/305, 710/313, 710/38

FIELD-OF-SEARCH: 710/8, 710/10, 710/2, 710/13, 710/38, 710/19, 710/313, 710/305, 710/1, 340/825, 370/402, 709/227

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>5968152</u>	October 1999	Staats	707/200
<input type="checkbox"/>	<u>6031977</u>	February 2000	Pettus	709/230
<input type="checkbox"/>	<u>6233611</u>	May 2001	Ludtke et al.	700/9

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date: Oct, 18, 2001.*

Dan Steinberg and Yitzhak Birk, An Empirical Analysis of the IEEE-1394 Serial Bus Protocol, pp. 58-64, No date provided.

An Empirical Analysis of the IEEE-1394 Serial Bus Protocol; Dan Steinberg, Yitzhak Birk, Technion --Israel Institute of Technology; Jan.-Feb. 2000.

1394 Developer's Conference 1999 Agenda listing presentation of "Emulation of a 1934 Device On a Standard Platform" by Nilesh Dange, NitAl Consulting Services on Jun. 4, 1999 (document printed on Jul. 22, 1999).

ART-UNIT: 2182

PRIMARY-EXAMINER: Gaffin; Jeffrey

ASSISTANT-EXAMINER: Patel; Niketa

ATTY-AGENT-FIRM: Banner & Witcoff, Ltd.

ABSTRACT:

Information stored in configuration memory of a first device coupled to a communication bus is exposed to other devices allowing the other devices to ascertain the functionality of the first device. A device driver corresponding to the device can, through an interface, cause a bus driver to alter the contents of the configuration memory thereby changing what information is exposed to other devices. When another device "enumerates" the now-altered configuration memory, the other device will learn of the new functionality and proceed in a normal fashion by loading those drivers necessary to use the newly-added functionality. Conversely, when a device and its corresponding device driver is removed, configuration memory is updated accordingly. The present invention may be beneficially applied to systems adhering to the IEEE 1394 Serial Bus standard.

21 Claims, 9 Drawing figures

WEST

Generate Collection

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L4: Entry 6 of 14

File: USPT

Nov 5, 2002

DOCUMENT-IDENTIFIER: US 6477589 B1

TITLE: Information processing apparatus and method

Brief Summary Text (9):

In case of serial bus interface adapted to or based on the IEEE1394 standard (hereinbelow, simply referred to as a "1394 interface"), each device holds a node-unique ID as device identification means. The ID is 64-bit data where higher 24 bits indicate a maker ID of the device allocated by the IEEE (the Institute of Electrical and Electronics Engineers), and the lower 48 bits indicate a unique ID that the maker can freely set. Accordingly, regardless of the maker and model of the device, a specific node-unique ID is set in the device. By this device identification means, devices can be specified in data communication on a network using the IEEE 1394 serial bus where a plurality of devices are connected (hereinbelow, referred to as a "1394 network"). Further, display means for recognizing a plurality of devices by using node unique IDs and displaying device connection information in the network called a topology map, may be provided to manage status of use of the 1394 network and improve usefulness of the network.

Detailed Description Text (9):

The connection among the respective devices may be made by mixedly using the daisy-chain and node-branching methods, thus attaining high connecting freedom. Further, the devices respectively have an ID, and construct a network within a range connected via the 1394 serial bus by recognizing the IDs with each other. For example, the devices respectively play a relaying role if they are daisy-chain connected respectively with a single 1394 serial bus cable, thus constructing a network.

Detailed Description Text (41):

In FIG. 5, the remaining area is called "unit space", used for designating addresses where information unique to each node such as identification information of each device (vendor name, model name or the like) and use conditions is stored. FIG. 10 shows addresses and functions of the information stored in a serial bus device register in the unit space. FIG. 10 show the addresses by offsets from "0xFFFFF0000800".

Detailed Description Text (51):

A node that has detected a change in the network connection construction, i.e., the increment/decrement of the number of nodes due to e.g. connection/removal of network device or power ON/OFF operation, or a node that must newly recognize the network connection construction transmits a bus reset signal via the 1394 interface onto the 1394 serial bus.

Detailed Description Text (123):

In the present embodiment, in a network using the 1394 serial bus, function information including device unique information is stored into the configuration ROMs of the respective devices connected to the network. Then, the functions of the devices are displayed utilizing the function information stored in the configuration ROMs, in accordance with purposes. Further, a service as application software, to search and determine a connection destination device can be easily realized.

WEST

Generate Collection

Print

L4: Entry 6 of 14

File: USPT

Nov 5, 2002

US-PAT-NO: 6477589

DOCUMENT-IDENTIFIER: US 6477589 B1

TITLE: Information processing apparatus and method

DATE-ISSUED: November 5, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Suzuki; Naohisa	Yokohama			JP
Nakamura; Atsushi	Kawasaki			JP
Kobayashi; Makoto	Yokohama			JP
Katano; Kiyoshi	Chiba			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
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APPL-NO: 09/ 270210 [PALM]

DATE FILED: March 15, 1999

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	10-063665	March 13, 1998
JP	11-066329	March 12, 1999

INT-CL: [07] G06 F 3/00

US-CL-ISSUED: 710/18; 710/9, 710/10, 710/19

US-CL-CURRENT: 710/18; 710/10, 710/19, 710/9

FIELD-OF-SEARCH: 710/18, 710/9, 710/10, 710/19, 710/8

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>5353399</u>	October 1994	Kuwamoto et al.	395/159
<input type="checkbox"/>	<u>5832298</u>	November 1998	Sanchez et al.	710/8
<input type="checkbox"/>	<u>6044411</u>	March 2000	Berglund et al.	710/9

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PUBN-DATE

December 1996

COUNTRY

EP

US-CL

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ART-UNIT: 2181

PRIMARY-EXAMINER: Wong; Peter

ASSISTANT-EXAMINER: Vo; Tim

ATTY-AGENT-FIRM: Fitzpatrick, Cella, Harper & Scinto

ABSTRACT:

In a 1394 network where a number of devices are connected, it is not easy to specify corresponding between a displayed device and a real device. Accordingly, "selection-candidate update processing, to find a new device and "processing for displaying candidates meeting set conditions" to display candidates which meet set conditions are provided, so as to display a device list window displaying selection candidates in a case where a set condition is, e.g., "printer".

26 Claims, 64 Drawing figures



USC06477589B1

(12) **United States Patent**
Suzuki et al.

(10) Patent No.: **US 6,477,589 B1**
(45) Date of Patent: **Nov. 5, 2002**

(54) **INFORMATION PROCESSING APPARATUS
AND METHOD**

5,832,286 A * 11/1998 Sanchez et al. 710/8
6,044,411 A * 3/2000 Berglund et al. 710/9

(75) Inventors: Naohisa Suzuki, Yokohama (JP);
Atsushi Nakamura, Kawasaki (JP);
Makoto Kobayashi, Yokohama (JP);
Kiyoshi Katano, Chiba (JP)

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Wizner, P., et al. "Meeting USB and IEEE 1394 Overcurrent
Protection Requirements Using PolySwitch Devices",
Wacon/97. Conference Proceedings (Cat. No.
97CH36149), Nov. 4-6, 1997, pp. 442-475.

* cited by examiner

(73) Assignee: Canon Kabushiki Kaisha, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/270,210

(22) Filed: Mar. 15, 1999

(30) **Foreign Application Priority Data**

Mar. 13, 1998 (JP) 10-063665
Mar. 12, 1999 (JP) 11-066329

(51) Int. Cl.⁷ G06F 3/00

(52) U.S. Cl. 710/18; 710/9; 710/10;
710/19

(58) Field of Search 710/18, 9, 10,
710/19, 8

(56) **References Cited**

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Primary Examiner—Peter Wong

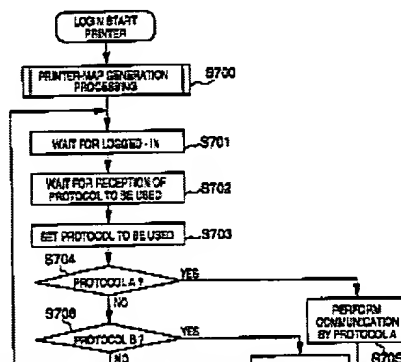
Assistant Examiner—Tim Vo

(74) Attorney, Agent, or Firm—Fitzpatrick, Cella, Harper &
Scinto

(57) **ABSTRACT**

In a 1394 network where a number of devices are connected,
it is not easy to specify corresponding between a displayed
device and a real device. Accordingly, "selection-candidate
update processing, to find a new device and "processing for
displaying candidates meeting set conditions" to display
candidates which meet set conditions are provided, so as to
display a device list window displaying selection candidates
in a case where a set condition is, e.g., "printer".

26 Claims, 61 Drawing Sheets





US005809331A

United States Patent [19]

[11] Patent Number: 5,809,331

Staats et al.

[45] Date of Patent: Sep. 15, 1998

[54] **SYSTEM FOR RETRIEVING CONFIGURATION INFORMATION FROM NODE CONFIGURATION MEMORY IDENTIFIED BY KEY FIELD USED AS SEARCH CRITERION DURING RETRIEVAL**

[75] Inventors: Erik P. Staats, Brookdale; Robin D. Leah, Milpitas, both of Calif.

[73] Assignee: Apple Computer, Inc., Cupertino, Calif.

[21] Appl. No.: 626,462

[22] Filed: Apr. 1, 1996

[51] Int. Cl.⁶ G06F 13/00; G06F 13/24; G06F 13/36

[52] U.S. Cl. 395/830; 395/500; 395/872; 395/284; 395/681

[58] Field of Search 395/651, 681, 395/872, 830, 500, 284

[56] References Cited

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5,595,563	1/1997	Spies	395/532
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Apple Computer, "Designing PCI Cards and Drivers for Power Macintosh Computers", Mar. 1995, pp. 1–366.

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Primary Examiner—Thomas C. Lee

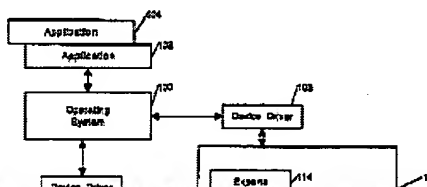
Assistant Examiner—Bahana Pervone

Attorney, Agents, or Firm—Blakely, Sokoloff, Taylor & Zafman

ABSTRACT

A computer system comprises a plurality of nodes interconnected by point-to-point links and forms a serial bus. Upon system initialization, the bus is scanned and device-specific identification information is retrieved from command and status configuration ROMs associated with each of the plurality of nodes. In one embodiment, a search routine is used to retrieve the device specific information. The search routine begins with the definition of an iterator which is used as a place holder during the search. A simple search begins at the root directory of a hierarchical tree data structure and continues until all directories within the tree have been searched. In more complex embodiments, search relationships (i.e., direction) parameters are defined. Search criteria such as node spec_ID and software version numbers are specified and the search is commenced. The search continues until all matching device specific information entries have been returned. The device specific information can be used to load and configure associated drivers for nodes.

12 Claims, 4 Drawing Sheets





US005809331A

United States Patent [19][11] Patent Number: **5,809,331**

Staats et al.

[45] Date of Patent: **Sep. 15, 1998**

[54] **SYSTEM FOR RETRIEVING CONFIGURATION INFORMATION FROM NODE CONFIGURATION MEMORY IDENTIFIED BY KEY FIELD USED AS SEARCH CRITERION DURING RETRIEVAL**

[75] Inventors: Erik P. Staats, Brookdale; Robin D. Lash, Milpitas, both of Calif.

[73] Assignee: Apple Computer, Inc., Cupertino, Calif.

[21] Appl. No.: 626,462

[22] Filed: Apr. 1, 1996

[51] Int. Cl.⁶ G06F 13/00; G06F 13/24; G06F 13/36

[52] U.S. Cl. 395/830; 395/500; 395/872; 395/284; 395/651

[58] Field of Search 395/651, 651, 395/872, 830, 500, 284

[56] **References Cited****U.S. PATENT DOCUMENTS**

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5,343,471	8/1994	Casagnot	370/85.13
5,586,268	12/1996	Chen et al.	395/250
5,598,563	1/1997	Spies	395/652
5,630,076	5/1997	Sampson et al.	295/284
5,713,009	1/1998	DeRosa, Jr. et al.	295/500

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ISO/IEC 13213 ANSI/IEEE Standard 1212, "Information Technology—Microprocessor Systems—Control and Status Registers (CSR) Architecture For Microprocessor Buses", First Edition, pp. 1–125, (Oct. 5, 1994).

Philips Electronics et al. Digital Interface for Consumer Electronic Audio/Video Equipment Draft Version 2.0, IEEE 1394 Trade Association Meeting, pp. 1–47, Part 2—pp. 1–6, (Oct. 1995).

High Performance Serial Bus Working Group of the Microprocessor and Microcomputer Standards Committee, "P1394 Standard for a High Performance Serial Bus", P1394 Draft 8.0v3, pp. 1–364, (Oct. 16, 1995).

Apple Computer, "Inside Macintosh, Devices", Nov. 1994, pp. 3.1–3.48.

"Information Technology—Microprocessor Systems—Control and Status Registers (CSR) Architecture for Microcomputer Buses" IEEE 1212, 1994.

"Standard for a High Performance Serial Bus", IEEE 1394, Oct. 1995, pp. ii–364.

Apple Computer, "Designing PCI Cards and Drivers for Power Macintosh Computers", Mar. 1995, pp. 1–366.

Apple Computer, Inc., "Interim Draft, Designing PCI Cards and Drivers for Power Macintosh Computers", A8 Draft—Preliminary Information, pp. 1–372, (Mar. 9, 1995).

Primary Examiner—Thomas C. Lee

Assistant Examiner—Rehana Perveen

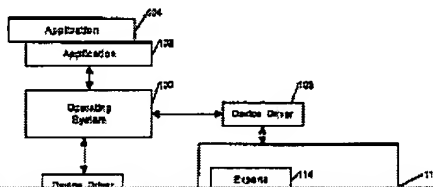
Attorney, Agent, or Firm—Blakely, Sokoloff, Taylor & Zafman

[57]

ABSTRACT

A computer system comprises a plurality of nodes interconnected by point-to-point links and forms a serial bus. Upon system initialization, the bus is scanned and device-specific identification information is retrieved from command and status configuration ROMs associated with each of the plurality of nodes. In one embodiment, a search routine is used to retrieve the device specific information. The search routine begins with the definition of an iterator which is used as a place holder during the search. A simple search begins at the root directory of a hierarchical tree data structure and continues until all directories within the tree have been searched. In more complex embodiments, search relationships (i.e., direction) parameters are defined. Search criteria such as node spec_ID and software version numbers are specified and the search is commenced. The search continues until all matching device specific information entries have been returned. The device specific information can be used to load and configure associated drivers for nodes.

12 Claims, 4 Drawing Sheets



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L1: Entry 1 of 22

File: USPT

Nov 4, 2003

DOCUMENT-IDENTIFIER: US 6643714 B1

TITLE: Modification and use of configuration memory used during operation of a serial bus

Brief Summary Text (5):

Serial buses are well known in the art. A recently developed serial bus standard is the so-called IEEE 1394 serial bus standard, based largely upon the internationally adopted ISO/IEC 13213 (ANSI/IEEE 1212) CSR Architecture Specification and the IEEE 1394-1995 Serial Bus Specification, the teachings of which are herein incorporated by these references. A typical serial bus having an IEEE 1394 standard architecture is comprised of a multiplicity of nodes that are interconnected via point-to-point links, such as cables, that each connect a single node of the serial bus to another node of the serial bus. The nodes themselves are addressable entities which can be independently reset and identified. Nodes are associated with respective components of the computer system and serve as interfaces between the components and the communications links. Nodes are logical entities, each with a unique address. In a preferred implementation, each node provides a so-called configuration ROM (read-only memory)--hereinafter referred to as configuration memory--and a standardized set of control registers that can be accessed by software residing within the computer system.

WEST

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L1: Entry 1 of 22

File: USPT

Nov 4, 2003

US-PAT-NO: 6643714

DOCUMENT-IDENTIFIER: US 6643714 B1

TITLE: Modification and use of configuration memory used during operation of a serial bus

DATE-ISSUED: November 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chrysanthakopoulos; Georgios	Kirkland	WA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Microsoft Corporation	Redmond	WA			02

APPL-NO: 09/ 441264 [PALM]

DATE FILED: November 16, 1999

PARENT-CASE:

This application claims the benefit of Provisional application Ser. No. 60/126,159, filed Mar. 25, 1999.

INT-CL: '[07] G06 F 3/00

US-CL-ISSUED: 710/8; 710/1, 710/2, 710/10, 710/38, 710/13, 710/313, 710/305, 370/202, 709/227

US-CL-CURRENT: 710/8; 370/202, 709/227, 710/1, 710/10, 710/13, 710/2, 710/305, 710/313, 710/38

FIELD-OF-SEARCH: 710/8, 710/10, 710/2, 710/13, 710/38, 710/19, 710/313, 710/305, 710/1, 340/825, 370/402, 709/227

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	5968152	October 1999	Staats	707/200
<input type="checkbox"/>	6031977	February 2000	Pettus	709/230
<input type="checkbox"/>	6233611	May 2001	Ludtke et al.	700/9

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date: Oct, 18, 2001.*

Dan Steinberg and Yitzhak Birk, An Empirical Analysis of the IEEE-1394 Serial Bus Protocol, pp. 58-64, No date provided.

An Empirical Analysis of the IEEE-1394 Serial Bus Protocol; Dan Steinberg, Yitzhak Birk, Technion --Israel Institute of Technology; Jan.-Feb. 2000.

1394 Developer's Conference 1999 Agenda listing presentation of "Emulation of a 1934 Device On a Standard Platform" by Nilesh Dange, NitAl Consulting Services on Jun. 4, 1999 (document printed on Jul. 22, 1999).

ART-UNIT: 2182

PRIMARY-EXAMINER: Gaffin; Jeffrey

ASSISTANT-EXAMINER: Patel; Niketa

ATTY-AGENT-FIRM: Banner & Witcoff, Ltd.

ABSTRACT:

Information stored in configuration memory of a first device coupled to a communication bus is exposed to other devices allowing the other devices to ascertain the functionality of the first device. A device driver corresponding to the device can, through an interface, cause a bus driver to alter the contents of the configuration memory thereby changing what information is exposed to other devices. When another device "enumerates" the now-altered configuration memory, the other device will learn of the new functionality and proceed in a normal fashion by loading those drivers necessary to use the newly-added functionality. Conversely, when a device and its corresponding device driver is removed, configuration memory is updated accordingly. The present invention may be beneficially applied to systems adhering to the IEEE 1394 Serial Bus standard.

21 Claims, 9 Drawing figures

WEST

Generate Collection

Print

L1: Entry 14 of 22

File: USPT

Oct 31, 2000

DOCUMENT-IDENTIFIER: US 6141767 A

TITLE: Method of and apparatus for verifying reliability of contents within the configuration ROM of IEEE 1394-1995 devices

Brief Summary Text (8):

Each node on the IEEE 1394-1995 serial bus provides an identification or configuration read only memory (ROM) in either a minimal or general format. The minimal ROM format includes a single quadlet (4 bytes) of data and provides only a twenty-four (24) bit company identifier. The general ROM format provides other information in addition to the company identifier. The company identifier is used to uniquely identify vendors that manufacture or specify components that are compatible with the IEEE 1394-1995 standard.

Detailed Description Text (5):

While any appropriate device can implement a node, serve as a host system and display the graphical user interface, an exemplary computer system 18 implementing such a node is illustrated in FIG. 6. Preferably, the host system of the present invention is coupled to an IEEE 1394-1995 serial bus network. However, it should be apparent to those skilled in the art that the node of the present invention can be configured to couple to any appropriate bus or network structure. The computer system 18 includes a central processor unit (CPU) 20, a main memory 30, a video memory 22 and an IEEE 1394-1995 interface circuit 28, all coupled together by a conventional bidirectional system bus 34. The interface circuit 28 includes a configuration ROM 29 and a physical interface circuit 42 for sending and receiving communications on the IEEE 1394-1995 serial bus network. The physical interface circuit 42 includes ports which are preferably each configured to be coupled to IEEE 1394-1995 cables connected to other devices. The physical interface circuit is coupled to a television 46 by the IEEE 1394-1995 serial bus cable 45 and to a video camera 44 by the IEEE 1394-1995 serial bus cable 43.

WEST☐

L1: Entry 14 of 22

File: USPT

Oct 31, 2000

US-PAT-NO: 6141767

DOCUMENT-IDENTIFIER: US 6141767 A

TITLE: Method of and apparatus for verifying reliability of contents within the configuration ROM of IEEE 1394-1995 devices

DATE-ISSUED: October 31, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Shima; Hisato	Saratoga	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Sony Corporation	Tokyo			JP	03
Sony Electronics, Inc.	Park Ridge	NJ			02

APPL-NO: 09/ 055132 [PALM]

DATE FILED: April 3, 1998

INT-CL: [07] G06 F 11/00

US-CL-ISSUED: 714/1; 365/201

US-CL-CURRENT: 714/1; 365/201

FIELD-OF-SEARCH: 714/1, 714/2, 714/5, 714/7, 714/20, 714/25, 714/27, 714/31, 714/39, 714/54, 714/4, 714/30, 714/718, 714/736, 365/185.22, 365/201, 364/491

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4238852</u>	December 1980	Iga et al.	371/40
<input type="checkbox"/>	<u>4726028</u>	February 1988	Himeno	371/37
<input type="checkbox"/>	<u>4788684</u>	November 1988	Kawaguchi et al.	371/21
<input type="checkbox"/>	<u>4881232</u>	November 1989	Sako et al.	371/37.4
<input type="checkbox"/>	<u>4910736</u>	March 1990	Tanaka et al.	371/37.7
<input type="checkbox"/>	<u>5001714</u>	March 1991	Stark et al.	371/26
<input type="checkbox"/>	<u>5020011</u>	May 1991	Stark et al.	364/580
<input type="checkbox"/>	<u>5517508</u>	May 1996	Scott	371/37.1
<input type="checkbox"/>	<u>5577219</u>	November 1996	Timko et al.	395/411
<input type="checkbox"/>	<u>5627955</u>	May 1997	Gnirss et al.	395/141
<input type="checkbox"/>	<u>5644709</u>	July 1997	Austin	395/185.06
<input type="checkbox"/>	<u>5675540</u>	October 1997	Roohparvar	365/185.22
<input type="checkbox"/>	<u>5815509</u>	September 1998	Deng et al.	371/21.2

OTHER PUBLICATIONS

IEEE, "1394-1995 Standard for a High Performance Serial Bus," 1995, USA.
ISO/IEC 13213:1994, ANSI/IEEE Std 1212 Cl. 8, 1994, pp. 79-100, USA.

ART-UNIT: 275

PRIMARY-EXAMINER: Iqbal; Nadeem

ATTY-AGENT-FIRM: Haverstock & Owens LLP

ABSTRACT:

A graphical user interface is used to display contents of a configuration memory and includes a hierarchical window illustrating directories and entries within the configuration memory including the relationships between the directories and entries and a data window for displaying data stored within the configuration memory and signalling errors corresponding to the data. The errors are determined by processing the data being displayed to determine a reference value for each entry within the data and to determine if any offset value, pointer value and count value included within any entry references a memory location outside of a boundary of the memory. The reference value specifies a number of times each entry is referenced. Errors are signalled within the data window by displaying entries corresponding to errors in a first color and entries which do not include errors in a second color. The system further includes a bus structure node circuit for coupling the system to other devices over a bus structure. Appropriate headings of directories and entries are displayed with the data in the data window. The bus structure is preferably an IEEE 1394-1995 serial bus.

30 Claims, 14 Drawing figures

WEST

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L1: Entry 21 of 22

File: USPT

Sep 15, 1998

DOCUMENT-IDENTIFIER: US 5809331 A

TITLE: System for retrieving configuration information from node configuration memory identified by key field used as search criterion during retrieval

Abstract Text (1):

A computer system comprises a plurality of nodes interconnected by point-to-point links and forms a serial bus. Upon system initialization, the bus is scanned and device-specific identification information is retrieved from command and status configuration ROMs associated with each of the plurality of nodes. In one embodiment, a search routine is used to retrieve the device specific information. The search routine begins with the definition of an iterator which is used as a place holder during the search. A simple search begins at the root directory of a hierarchical tree data structure and continues until all directories within the tree have been searched. In more complex embodiments, search relationships (i.e., direction) parameters are defined. Search criteria such as node spec.sub.-- ID and software version numbers are specified and the search is commenced. The search continues until all matching device specific information entries have been returned. The device specific information can be used to load and configure associated drivers for nodes.

Detailed Description Text (14):

For an embodiment conforming to the IEEE 1394 Serial Bus Standard, each transaction capable node 12, 15, 16, 24, 32, 34, 40 and 44 of the serial bus implements a configuration ROM. The configuration ROM is a nonvolatile memory which stores critical boot information which is accessed during bus initialization as described below. The boot information is stored in the Name Registry and used to identify the appropriate driver software to be loaded for the node of interest.

Detailed Description Text (15):

FIG. 3 illustrates the general ROM format for each configuration ROM 50 of the serial bus. For one embodiment, the node configuration ROMs 50 reside within the address space of the serial bus in accordance with the IEEE 1394 Serial bus Standard. As shown, the configuration ROM 50 is divided into a root directory 52, various root dependent directories 54, root leafs 56, unit directories 58, unit dependent directories 60, and unit leafs 62. Thus, the directories are arranged in a hierarchical fashion. Within this structure, directories may have "children", "parents" and "siblings".

Detailed Description Text (17):

All directories in the node configuration ROMs 50 have the format shown in FIG. 4. The directory length parameter specifies the number of following quadlet entries in the directory. Each directory entry then has the format shown in FIG. 5. Each directory entry is broken down into a key field and an entry value field. The key field itself has two fields: the key type, indicating the type of directory entry, and the key value, specifying the particular directory entry, e.g., spec.sub.-- ID, unit software version, etc. The key type definitions for a preferred embodiment according to the IEEE 1394 Serial Bus Standard are shown in Table 1, below.

Detailed Description Text (18):

For an immediate entry, the entry value is the 24-bit value for that directory entry. Its meaning is dependent on the type of entry. For an offset entry, the entry value contains a 24-bit offset field. The offset value specifies a CSR address as a

quadlet offset from the base address of the initial register space. For the leaf and directory entries, the entry value provides a 24-bit indirect offset value which specifies the address of the leaf or directory of the indirect space. The indirect offset value indirectly specifies the ROM offset address of the leaf or the directory. Thus, using the key type and key value, a specific entry in the configuration ROM 50 of a node on the serial bus can be identified.

Detailed Description Text (19):

The present invention provides a method for searching the configuration ROMs 50 of the nodes on a serial bus. In one embodiment, a method of searching for and retrieving node software version and spec.sub.-- ID information is provided. This information can then be used by computer system 5 to load appropriate driver software for the nodes of the bus.

Detailed Description Text (20):

The search routine, in one embodiment, is provided with a pointer to the CSR configuration ROM of a specified node within the address space of the serial bus. Search parameters are defined. The search parameters correspond to the key types and key values defined for the node software version number and spec.sub.-- ID. Using these parameters, the search routine scans the address space of the configuration ROM and returns with matches for the given search parameters.

WEST**End of Result Set**☐

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L1: Entry 22 of 22

File: USPT

Jun 9, 1998

DOCUMENT-IDENTIFIER: US 5764930 A

TITLE: Method and apparatus for providing reset transparency on a reconfigurable bus

Brief Summary Text (5):

One type of system interconnect is described by IEEE Standards Document 1394, entitled Standard For A High Performance Serial Bus (hereinafter the "IEEE 1394 Serial Bus Standard"). A typical serial bus having an IEEE 1394 standard architecture is comprised of a multiplicity of nodes that are interconnected via point-to-point links, such as cables, that each connect a single node of the serial bus to another node of the serial bus. The nodes themselves are uniquely addressable entities which can be independently reset and identified. Nodes are associated with respective components of the computer system and serve as interfaces between the components and the communications links. Each node provides an identification (or configuration) ROM and a standardized set of control registers.

WEST**End of Result Set**☐ **Generate Collection** **Print**

L1: Entry 22 of 22

File: USPT

Jun 9, 1998

US-PAT-NO: 5764930

DOCUMENT-IDENTIFIER: US 5764930 A

TITLE: Method and apparatus for providing reset transparency on a reconfigurable bus

DATE-ISSUED: June 9, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
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APPL-NO: 08/ 626129 [PALM]

DATE FILED: April 1, 1996

INT-CL: [06] G06 F 3/00

US-CL-ISSUED: 395/287; 395/286, 395/200.68

US-CL-CURRENT: 710/107; 709/238, 710/106

FIELD-OF-SEARCH: 395/200.15, 395/800, 395/200, 395/831, 395/287, 395/275, 395/308, 395/309, 395/200.13, 395/286, 370/63, 370/60, 370/85.2, 370/258

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

☐ **Search Selected**☐ **Search ALL**

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>5394556</u>	February 1995	Oprescu	
<input type="checkbox"/>	<u>5579486</u>	November 1996	Oprescu et al.	

OTHER PUBLICATIONS

ISO/IEC 13213 ANSI/IEEE Standard 1212, "Information Technology-Microprocessor Systems-Control and Status Registers (CSR) Architecture For Microprocessor Buses", First Edition, pp. 1-125, (Oct. 5, 1994).

Philips Electronics et al, Digital Interface for Consumer Electronic Audio/Video Equipment Draft Version 2.0, IEEE 1394 Trade Association Meeting, pp. 1-47, Part 2-pp. 1-6, (Oct. 1995).

High Performance Serial Bus Working Group of the Microprocessor and Microcomputer Standards Committee, "P1394 Standard for a High Performance Serial Bus", P1394 Draft

8.0v3, pp. 1-364, (Oct. 16, 1995).

Apple Computer, Inc., "Interim Draft, Designing PCI Cards and Drivers for Power Macintosh Computers", A8 Draft-Preliminary Information, pp. 1-372, (Mar. 9, 1995).

Apple Computer, "Inside Macintosh", Nov. 1994, pp. 3-3-3-48, Chapter 3 entitled, SCSI Manager.

"Information Technology-Microprocessor Systems-Control and Status Registers (CSR) Architecture For Microcomputer Buses", IEEE 121210/94, pp. 3-125.

"Standard For A High Performance Serial Bus", IEEE 1394, Oct. 1995, pp. 1-364.

Apple Computer, "Designing PCI Cards and Drivers For Power Macintosh Computers", Mar. 1995, pp. 4-365.

ART-UNIT: 235

PRIMARY-EXAMINER: Sheikh; Ayaz R.

ASSISTANT-EXAMINER: Dharia; Rupal D.

ATTY-AGENT-FIRM: Blakely, Sokoloff, Taylor & Zafman

ABSTRACT:

A computer system includes a plurality of nodes, each having an associated unique identification and bus address, interconnected by point-to-point links. Device data records are maintained in a memory of the computer system wherein node unique identifications, which are bus reset invariant, are associated with corresponding node bus addresses, which are subject to change with bus resets. A driver associated with a source node initiates a bus transaction and specifies a reference identification for the destination node. The reference identification of the destination node is used to access the device data records to obtain the corresponding destination node bus address. When a bus transaction cannot be completed because a bus reset occurs, the device data records are updated to associate the new bus addresses of the nodes with the corresponding node unique identifications. The new destination node bus address is used to complete the bus transaction that was interrupted by the bus reset.

7 Claims, 2 Drawing figures